CURRENT-TYPE TOUCH CONTROL PANEL

BACKGROUND OF THE INVENTION

[0001] The present invention relates to a flexible touch control panel of the current-type, in particular a touch control panel which may be bent into an arcuate or curved shape for implementation in various display panels with a curved face or the folded-type display panels.

[0002] The touch control shield in the prior art is directly printed on the liquid crystal panel or other display devices. It is difficult to print the material of such touch control shield of the prior art directly onto arcuate-faced or folded-type display panels. Therefore, the subject of this invention is to find a way to directly print a current-type touch control shield on a layer of flexible, thin plastic sheet such that the entire touch control panel possesses the property of flexibility and thus can be adhered onto a display panel having a curved surface.

SUMMARY OF THE INVENTION

[0003] Accordingly, a main object of the present invention is to provide a flexible touch control panel of the current-type, in which the characteristic of bending (angular) flexibility possessed by the touch control panel is put into play so that the touch contact sheet may be attached onto any display panel with curved shape.

[0004] A further object of the present invention is to provide a flexible touch control panel of the current-type, in which the touch control panel may be bent at least at an angle of from 0°-180° along the center edge thereof.

[0005] To achieve the above objects, the present invention provides a flexible touch control panel of the current-type comprising a flexible, current-type touch control panel, comprising a current-type touch control shield consisting of a plurality of material layers and being printed on a flexible, transparent plastic membrane, thus forming the flexible, current-type touch control panel which is flexibly bendable to an angle of at least from 0°-180°.

BRIEF DESCRIPTION OF THE DRAWING

[0006] Other features and advantages of the present invention will become apparent in the following detailed description of the preferred embodiment with reference to the accompanying drawings, in which:

[0007] **FIG. 1** is an exploded perspective view of an embodiment of the flexible touch control panel according to the present invention;

[0008] **FIG. 2** is a sectional view of the present invention;

[0009] **FIG. 3** is an enlarged partial sectional view of the present invention;

[0010] **FIG. 4** is a plan view of the present invention;

[0011] **FIG. 5** is a schematic drawing showing the practical operation of touch control according to the present invention;

[0012] **FIG. 6** is a perspective view showing the present invention bent into an arcuate form;

[0013] **FIG. 7** is a sectional view showing the present invention attached onto an arcuate display panel;

[0014] **FIG. 8** is a perspective view of an alternative embodiment of the present invention; and

[0015] **FIG. 9** is sectional view showing the present invention implemented in a folded form.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0016] With reference to **FIGS. 1, 2, 3** and **4**, the touch control panel according to a preferred embodiment of the present invention is structurally characterized by comprising a current-type touch control shield **10** consisting of a plurality of material layers and being printed on a flexible, transparent plastic membrane **12**. The flexible, current-type touch control panel **100** thus formed is flexibly bendable to an angle of at least from 0°-180°.

[0017] According to the main features described above, the touch control panel **100**, by its bendability, can be attached onto the surface of any curved display panel **85**.

[0018] According to the main features described above, one or more touch control shields **10(10')** may at least be printed on the transparent plastic membrane **12**, and can be adhered onto the surface of a folded-type display panel **85(85')**.

[0019] According to the main features described above, the material layers of the touch control shield **10** comprise:

[0020] a transparent or translucent ITO (Indium Tin Oxide) conductive film **20** printed by printing on the surface of the transparent plastic membrane **12**;

[0021] a transparent or translucent conductive thin, protective layer **30** printed by printing on the ITO conductive film **20**;

[0022] a lower isolation layer **40** in the form of a rectangular frame, printed on the four peripheral edges of the protective layer **30**;

[0023] a plurality of silver printing layers **50** printed by printing on the surface of the lower isolation layer **40**;

[0024] a linearization pattern **60** of a generally rectangular frame printed by printing on the protective layer **30** and located on the inner side of the frame of the silver printing layer **50**, the linearization pattern **60** having four corners connected to the inner connecting ends **51**, **52**, **53** and **54** of the silver printing layer **50**, respectively; and

[0025] an upper isolation layer **70** generally in the form of a rectangular frame, and printed by printing on the silver printing layer **50** and linearization pattern **60**.

[0026] According to the main features described above, a soft tail **80** has a connecting end **80*a*** connected to the external connecting end **50*a*** of the silver printing layer **50**, and can output the current value signal touched on the touch control panel **100**.

[0027] As achieved by the main and sub-features described above, the present invention has the following embodiments and superior effects in practice: